CLIFTON MINING COMPANY

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United States Department of the Interior
Bureau of Land Management
Salt Lake District Office
2370 South 2300 West
Salt Lake City, UT 84119
25 August 1997

Re: U-73999 (UT-023) 3809

Dear Ms. Wyatt:

We received in our office on the 22nd of August a reminder letter for information pertaining to our Plan of Operations for milling at the Cactus Mill Site in Gold Hill, Utah. I have been asked to respond to item one of that letter as it pertains to the characterization of the waste generated by the future milling operation.

In order to give a characterization of the waste rock that will be generated at the mill, a description of the mill feed (mine rock, i.e. ore) must first be characterized. The mill feed will come from veins located in the Clifton Mining district approx. seven (7) miles to the south of the mill. The veins are comprised chiefly of quartz and carbonate rocks of varying proportions within quartz monzonite. The quartz is vein quartz and the carbonate rocks are an iron-magnesium-calcium carbonate. The ore is over 95% oxide material and only(+ / -) 2.5% sulphides, which consist of the following minerals:

1. Cerrusite $PbCO_3$
2. Plumbojarosite $Pb.3Fe_2\ O_3.4SO_3.6H_2O$
3. Iron oxides Fe_2O_3
4. Plumbian manganese oxides PbMnO
5. Pyrolucite MnO
6. Galena PbS
7. Mimetite $(Pb,Cl)Pb.4(AsO_4)$ minor amounts
8. Phosgenite $PbCl.CO_3$ minor amounts
9. Anglesite $PbSO_4$
10. Beudantite (lead arsenate)
11. Coronadite PbMnO
12. Argentojarosite
13. Chlorargyrite AgCl (minor amounts)
14. Native Silver (rare)
15. Free milling Gold (minute amounts)
16. <1% Pyrite FeS
17. Chalcopyrite CuFeS (very minor amounts)

The general tenor of the ore is not acid generating and also contains (+ / -) 40% acid neutralizing carbonate material. The mill will generate waste comprised chiefly of quartz and carbonate rocks. Over 95% of the lead will be recovered in the milling process and lead in the waste (tailings) will be well below any allowable detection limits. The remaining sulphides in the mill feed will also be recovered in the milling process, thus emitting a very small amount to the tails and any acids generated from these sulphides will be neutralized by the high percentage of the carbonate material in the tails, virtually eliminating any possibility of acid rock drainage.

Presently with over 450,000 tons of oxide ores in reserves (Behre Dolbear, 1997), mining is expected for at least seven years at 200 tons per day. However, sulphide ores will eventually be encountered at and below the water table. These high sulphide ores will be treated differently from the present oxide material in order to attain the highest quality concentrates and clean acceptable tails.

Given the nature of the present mill feed we do not expect any problems with acid rock drainage.

Sincerely,

W. Dan Proctor, Chief Geologist